A pulse no longer necessary for life

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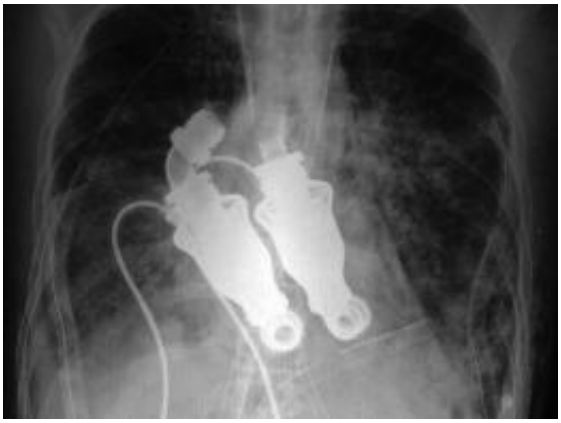

This X-ray image shows the dual turbinelike blood pumps that replaced patient's heart. Image: Texas Heart Institute

(PhysOrg.com) -- While most people connect a pulse and a heartbeat to life, Dr. Billy Cohn and Dr. Bud Frazier from the Texas Heart Institute have found a way to keep the blood circulating and extend the life of patients while taking away their pulse.

Researchers have spent years trying to perfect an artificial heart that does not break down, wear out, or cause blood clots and infections. However, Cohn and Frazier have developed an artificial heart, of sorts, that seems to do the trick. The only catch is it isn't a heart. There is no heartbeat. There is no pulse. If a patient had one of their new hearts, the patient would appear dead. Attaching an EKG would return a flat-line.

The new device uses technology that has been used to aid failing hearts since the 1980s. A ventricular assist device, or VAD, is a circulatory device designed to assist either the right or left ventricle of the heart. The VADs have a rotor of blades that circulate and push the blood forward in a continuous flow.

While VADs are typically used to help one section of the heart, Cohn and Frazier hooked two of these VADs together so they would essentially work as both sides of the heart. They began working on calves and currently have an 8-month-old calf named Abigail who has no heart. Her heart was removed and in its place the doctors inserted their new pump device. Abigail is a healthy and active young calf, however, according to any medical cardiac tests, she would appear dead.

Cohn and Frazier, after testing on 38 calves, wanted to take this new pump one step further and test it on a human patient. This is where Craig Lewis, a 55-year-old man who was dying from amyloidosis comes in. His heart had become so damaged from the disease that doctors had only given him about 12 hours to live. Lewis and his wife agreed to let the doctors try the new artificial heart pump to try and extend his life, if even for a short time. The doctors inserted the new pumps and Lewis did recover and had another month of life before the disease took other organs. His new heart however worked flawlessly.

Cohn and Frazier still have much work to do before the new heart will be available. A final design must be determined, a manufacturer must be found and they must apply for FDA approval. Results show amazing promise and may be the new future in artificial hearts.